

remarkably deteriorated by oxygen and water, being more effective for the image-forming apparatus using the surface conduction type electron emission element comprising the carbon film. However, the present invention is by no means limited to these elements.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 shows a flow chart of the degassing step in Example 1.

FIG. 2 is a perspective view showing an outline of the image-forming apparatus making use of the surface conduction type electron emission element.

FIGS. 3A and 3B are illustrative drawings showing the construction of the surface conduction type electron emission element.

FIG. 4 is a graph showing the relation between the absorption characteristics per arbitrary unit area of the nonevaporable getter and temperature.

FIG. 5 is a graph showing the relation between the temperature profile of the vessel and press in the vessel in the process before and after the baking treatment in the examples.

FIG. 6 shows a flow chart in the process in Comparative Example 1.

FIG. 7 is a graph showing the relation between the

temperature profile of the vessel and pressure in the vessel before and after the baking treatment in Comparative Example 1.

5 FIG. 8 shows the flow chart in the degassing step in Example 2.

FIG. 9 is a graph showing the time-dependent changes of electron emission characteristics in Example 2 and in Comparative Example 2.

10 FIG. 10 is an illustrative drawing showing the field effect type electron emission element.

FIG. 11 is a perspective view showing an outline of the image-forming apparatus making use of the field effect type electron emission element formed in Example 3.

15 FIG. 12 shows the flow chart of the degassing process in Example 3.

FIG. 13 is a graph showing the time-dependent changes of the pressure in the vessel manufactured in Example 3 and Comparative Example 3.

20 FIG. 14 is a perspective view showing an outline of the image-forming apparatus manufactured in Example 4.

FIGS. 15A, 15B, 15C, 15D, 15E and 15F are illustrative diagrams showing the process for forming the electron source plate manufactured in Example 4.

25 FIGS. 16A and 16B show a pulse waveform preferably

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used in the activation step of the surface conduction type electron emission element.

FIGS. 17A and 17B are pulse waveforms preferably used in the forming step of the surface conduction type electron emission element.

FIG. 18 shows a flow chart of the degassing step in Example 5.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Although details of the present invention will be described referring to the drawings, the present invention is by no means restricted to these descriptions.

Example 1

The image-forming apparatus having a construction as shown in FIG. 2 was manufactured. A plurality of surface conduction type electron emission elements - one kind of cold cathode electron emission elements - were formed on the rear plates in this example. fluorescent films were provided on the face plate and a color image-forming apparatus with an effective display area having a diagonal length of 15 inches and vertical to transverse length ratio of 3 : 4 was manufactured.

The image-forming apparatus according to this example will be described referring to FIG. 2.